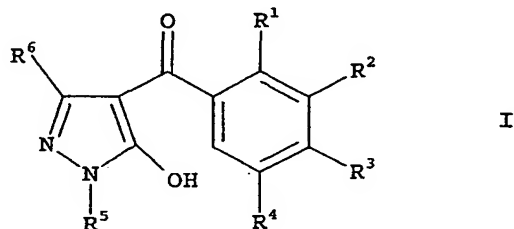


We claim:

1. A synergistic herbicidal mixture comprising

5 A) at least one 3-heterocyclyl-substituted benzoyl derivative of the formula I



10 in which the variables have the following meanings:

15  $R^1$ ,  $R^3$  are halogen,  $C_1$ - $C_6$ -alkyl,  $C_1$ - $C_6$ -haloalkyl,  $C_1$ - $C_6$ -alkoxy,  $C_1$ - $C_6$ -haloalkoxy,  $C_1$ - $C_6$ -alkylthio,  $C_1$ - $C_6$ -alkylsulfinyl or  $C_1$ - $C_6$ -alkylsulfonyl;

20  $R^2$  is a heterocyclic radical selected from the group: isoxazol-3-yl, isoxazol-4-yl, isoxazol-5-yl, 4,5-dihydroisoxazol-3-yl, 4,5-dihydroisoxazol-4-yl and 4,5-dihydroisoxazol-5-yl, it being possible for the six radicals mentioned to be unsubstituted or mono- or polysubstituted by halogen,  $C_1$ - $C_4$ -alkyl,  $C_1$ - $C_4$ -alkoxy,  $C_1$ - $C_4$ -haloalkyl,  $C_1$ - $C_4$ -haloalkoxy or  $C_1$ - $C_4$ -alkylthio;

25  $R^4$  is hydrogen, halogen or  $C_1$ - $C_6$ -alkyl;

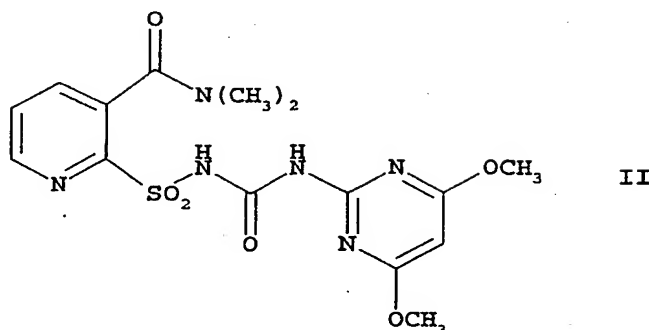
$R^5$  is  $C_1$ - $C_6$ -alkyl;

30  $R^6$  is hydrogen or  $C_1$ - $C_6$ -alkyl;

or one of its environmentally compatible salts;

and

B) the compound of formula II



or one of its environmentally compatible salts;

and,

C) at least one herbicidal compound from the group of the acetolactate synthase inhibitors (ALS), lipid biosynthesis inhibitors and photosynthesis inhibitors;

in a synergistically effective amount.

2. A synergistic herbicidal mixture as claimed in claims 1, comprising, as component A), a 3-heterocyclyl-substituted benzoyl derivative of the formula I, where R<sup>4</sup> is hydrogen.

3. A synergistic herbicidal mixture as claimed in any of claims 1 to 2, comprising, as component A), a 3-heterocyclyl-substituted benzoyl derivative of the formula I, where

R<sup>1</sup> is halogen, C<sub>1</sub>-C<sub>6</sub>-alkyl or C<sub>1</sub>-C<sub>6</sub>-alkylsulfonyl;

R<sup>3</sup> is halogen or C<sub>1</sub>-C<sub>6</sub>-alkylsulfonyl;

4. A synergistic herbicidal mixture as claimed in any of claims 1 to 3, comprising, as component A), a 3-heterocyclyl-substituted benzoyl derivative of the formula I, where

R<sup>2</sup> is a heterocyclic radical selected from the group:  
isoxazol-3-yl, isoxazol-5-yl and 4,5-dihydroisoxazol-3-yl, it being possible for the three radicals mentioned  
5 to be unsubstituted or mono- or polysubstituted by  
halogen, C<sub>1</sub>-C<sub>4</sub>-alkyl, C<sub>1</sub>-C<sub>4</sub>-alkoxy, C<sub>1</sub>-C<sub>4</sub>-haloalkyl, C<sub>1</sub>-C<sub>4</sub>-haloalkoxy or C<sub>1</sub>-C<sub>4</sub>-alkylthio.

5. A synergistic herbicidal mixture as claimed in any of  
10 claims 1 to 4, comprising, as component A), a 3-heterocyclyl-substituted benzoyl derivative of the formula I, where

R<sup>2</sup> is isoxazol-5-yl, 3-methyl-isoxazol-5-yl, 4,5-dihydro-  
15 isoxazol-3-yl, 5-methyl-4,5-dihydroisoxazol-3-yl, 5-ethyl-4,5-dihydroisoxazol-3-yl or 4,5-dimethyl-4,5-dihydroisoxazol-3-yl.

6. A synergistic herbicidal mixture as claimed in any of  
20 claims 1 to 5, comprising, as component A), 4-[2-chloro-3-(4,5-dihydroisoxazol-3-yl)-4-methylsulfonyl-benzoyl]-1-methyl-5-hydroxy-1H-pyrazole.

7. A synergistic herbicidal mixture as claimed in any of  
25 claims 1 to 5, comprising, as component A) 4-[2-methyl-3-(4,5-dihydroisoxazol-3-yl)-4-methylsulfonyl-benzoyl]-1-methyl-5-hydroxy-1H-pyrazole.

8. A synergistic herbicidal mixture as claimed in any of  
30 claims 1 to 7, comprising, at least three active ingredients, a 3-heterocyclyl-substituted benzoyl derivative of the formula I (component A) as claimed in claims 1 to 7, the compound of formula II (component B) and

35 C) at least one herbicidal compound from the groups C1 to C3:

C1 acetolactate synthase inhibitors (ALS):

imidazolinones, pyrimidyl ethers, sulfonamides or sulfonylureas;

C2 lipid biosynthesis inhibitors:

5 anilides, chloroacetanilides, thioureas, benfuresate or perfluidone;

C3 photosynthesis inhibitors:

10 propanil, pyridate, pyridafol, benzothiadiazinones, dinitrophenols, dipyridylenes, ureas, phenols, chloridazon, triazines, triazinones, uracils or biscarbamates;

or their environmentally compatible salts.

15 9. A synergistic herbicidal mixture as claimed in claims 1 or 8, comprising, as component C), at least one herbicidal compound from the groups C1 to C3:

C1 acetolactate synthase inhibitors (ALS):

20 - imidazolinones:

imazapyr, imazaquin, imazamethabenz-methyl (imazame), imazamox, imazapic, imazethapyr or imazamethapyr;

- pyrimidyl ethers:

25 pyriithiobac-acid, pyriithiobac-sodium, bispyribac-sodium, KIH-6127 or pyribenzoxym;

- sulfonamides:

florasulam, flumetsulam or metosulam; or

- sulfonylureas:

30 amidosulfuron, azimsulfuron, bensulfuron-methyl, chlorimuron-ethyl, chlorsulfuron, cinosulfuron, cyclosulfamuron, ethametsulfuron-methyl, ethoxysulfuron, flazasulfuron, halosulfuron-methyl, imazosulfuron, metsulfuron-methyl, primisulfuron-methyl, prosulfuron, pyrazosulfuron-ethyl, rimsulfuron, sulfometuron-methyl, thifensulfuron-methyl, triasulfuron, tribenuron-methyl, triflurosulfuron-methyl, N-[[[4-methoxy-6-(trifluoromethyl)-1,3,5-

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triazin-2-yl]amino]-carbonyl]-2-(trifluoromethyl)-  
benzenesulfonamide, sulfosulfuron or idosulfuron;

C2 lipid biosynthesis inhibitors:

- 5           - anilides:  
            anilofos or mefenacet;
- chloroacetanilides:  
            dimethenamid, S-dimethenamid, acetochlor,  
            alachlor, butachlor, butenachlor, diethatyl-ethyl,  
10           dimethachlor, metazachlor, metolachlor, S-  
            metolachlor, pretilachlor, propachlor, prynachlor,  
            terbuchlor, thenylchlor or xylachlor;
- thioureas:  
            butylate, cycloate, di-allate, dimepiperate, EPTC,  
15           esprocarb, molinate, pebulate, prosulfocarb,  
            thiobencarb (benthiocarb), tri-allate or ver-  
            nolate; or
- benfuresate or perfluidone;

20          C3 photosynthesis inhibitors:

- propanil, pyridate or pyridafol;
- benzothiadiazinones:  
            bentazone;
- dinitrophenols:  
25           bromofenoxim, dinoseb, dinoseb-acetate, dinoterb  
            or DNOC;
- dipyridylenes:  
            cyperquat-chloride, difenzoquat-methylsulfate,  
            diquat or paraquat-dichloride;
- 30           - ureas:  
            chlorbromuron, chlorotoluron, difenoxuron, dimefu-  
            ron, diuron, ethidimuron, fenuron, fluometuron,  
            isoproturon, isouron, linuron, methabenzthiazuron,  
            methazole, metobenzuron, metoxuron, monolinuron,  
35           neburon, siduron or tebuthiuron;
- phenols:  
            bromoxynil or ioxynil;
- chloridazon;
- triazines:

- ametryn, atrazine, cyanazine, desmetryn, dimethamethryn, hexazinone, prometon, prometryn, propazine, simazine, simetryn, terbumeton, terbutryn, terbutylazine or trietazine;
- 5                   - triazinones:  
                  metamitron or metribuzine;
- uracils:  
                  bromacil, lenacil or terbacil; or
- biscarbamates:  
10                  desmedipham or phenmedipham

or their environmentally compatible salts.

10. A synergistic herbicidal mixture as claimed in claim 9,  
15                   comprising, as component C), at least one herbicidal compound from the group C1.
11. A synergistic herbicidal mixture as claimed in claim 10  
20                   comprising, as component A) 4-[2-methyl-3-(4,5-dihydroisoxazol-3-yl)-4-methylsulfonyl-benzoyl]-1-methyl-5-hydroxy-1H-pyrazole, as component B) the compound of formula II and as component C) a sulfonylureas from the group C1.
- 25                   12. A synergistic herbicidal mixture as claimed in claim 10  
                  comprising, as component A) 4-[2-methyl-3-(4,5-dihydroisoxazol-3-yl)-4-methylsulfonyl-benzoyl]-1-methyl-5-hydroxy-1H-pyrazole, as component B) the compound of formula II and as component C) rimsulfuron.
- 30                   13. A synergistic herbicidal mixture as claimed in claim 9  
                  comprising, as component A) 4-[2-methyl-3-(4,5-dihydroisoxazol-3-yl)-4-methylsulfonyl-benzoyl]-1-methyl-5-hydroxy-1H-pyrazole, as component B) the compound of formula II and as component C) a herbicidal compound from the  
35                   group C2.
14. A synergistic herbicidal mixture as claimed in claim 13  
                  comprising, as component A) 4-[2-methyl-3-(4,5-dihydro-

isoxazol-3-yl)-4-methylsulfonyl-benzoyl]-1-methyl-5-hydroxy-1H-pyrazole, as component B) the compound of formula II and as component C) a chloroacetanilide from group C2.

5

15. A synergistic herbicidal mixture as claimed in claim 13, comprising as component A) 4-[2-methyl-3-(4,5-dihydroisoxazol-3-yl)-4-methylsulfonyl-benzoyl]-1-methyl-5-hydroxy-1H-pyrazole, as component B) the compound of formula II and as component C) dimethenamid or S-dimethenamid.

10

16. A synergistic herbicidal mixture as claimed in claim 9 comprising, as component A) 4-[2-methyl-3-(4,5-dihydroisoxazol-3-yl)-4-methylsulfonyl-benzoyl]-1-methyl-5-hydroxy-1H-pyrazole, as component B) the compound of formula II and as component C) a herbicidal compound from the group C3.

15

17. A synergistic herbicidal mixture as claimed in claim 16 comprising, as component A) 4-[2-methyl-3-(4,5-dihydroisoxazol-3-yl)-4-methylsulfonyl-benzoyl]-1-methyl-5-hydroxy-1H-pyrazole, as component B) the compound of formula II and as component C) a triazine from group C3.

20

18. A synergistic herbicidal mixture as claimed in claim 16, comprising as component A) 4-[2-methyl-3-(4,5-dihydroisoxazol-3-yl)-4-methylsulfonyl-benzoyl]-1-methyl-5-hydroxy-1H-pyrazole, as component B) the compound of formula II and as component C) atrazine.

25

19. A synergistic herbicidal mixture as claimed in claim 16 comprising, as component A) 4-[2-methyl-3-(4,5-dihydroisoxazol-3-yl)-4-methylsulfonyl-benzoyl]-1-methyl-5-hydroxy-1H-pyrazole, as component B) the compound of formula II and as component C) a benzothiadiazionone from group C3.

30

35

20. A synergistic herbicidal mixture as claimed in claim 16, comprising as component A) 4-[2-methyl-3-(4,5-dihydroisoxa-

zol-3-yl)-4-methylsulfonyl-benzoyl]-1-methyl-5-hydroxy-1H-pyrazole, as component B) the compound of formula II and as component C) bentazone.

- 5 21. A synergistic herbicidal mixture as claimed in claim 9 comprising, as component A) 4-[2-methyl-3-(4,5-dihydroisoxazol-3-yl)-4-methylsulfonyl-benzoyl]-1-methyl-5-hydroxy-1H-pyrazole, as component B) the compound of formula II and as component C) a herbicidal compound from the  
10 group C1 and a herbicidal compound from the C3.
22. A synergistic herbicidal mixture as claimed in claim 9, comprising as component A) 4-[2-methyl-3-(4,5-dihydroisoxazol-3-yl)-4-methylsulfonyl-benzoyl]-1-methyl-5-hydroxy-1H-pyrazole, as component B) the compound of formula II and as  
15 component C) rimsulfuron and atrazine.
23. A synergistic herbicidal mixture as claimed in claim 9 comprising, as component A) 4-[2-methyl-3-(4,5-dihydroisoxazol-3-yl)-4-methylsulfonyl-benzoyl]-1-methyl-5-hydroxy-1H-pyrazole, as component B) the compound of formula II and as component C) a herbicidal compound from the  
20 group C2 and a herbicidal compound from the C3.
24. A synergistic herbicidal mixture as claimed in claim 9, comprising as component A) 4-[2-methyl-3-(4,5-dihydroisoxazol-3-yl)-4-methylsulfonyl-benzoyl]-1-methyl-5-hydroxy-1H-pyrazole, as component B) the compound of formula II and as  
25 component C) dimethenamid and atrazine or S-dimethenamid and atrazine.  
30
25. Synergistic herbicidal mixture as claimed in any of claims 1 to 24, wherein component A) and B) are present in a weight ratio of 1:0.001 to 1:500.  
35
26. Synergistic herbicidal mixture as claimed in any of claims 1 to 25, wherein component A) and component C) are present in a weight ratio of 1:0.002 to 1:800.



27. A herbicidal composition comprising a herbicidally active amount of a synergistic herbicidal mixture as claimed in any of claims 1 to 26, at least one inert liquid and/or solid carrier and, if desired, at least one surfactant.

5

28. A process for the preparation of herbicidal compositions as claimed in claim 27, wherein component A), component B) and component C), at least one inert liquid and/or solid carrier and, if appropriate, a surfactant are mixed.

10

29. A method of controlling undesired vegetation, which comprises applying a synergistic herbicidal mixture as claimed in any of claims 1 to 26 before, during and/or after the emergence of undesired plants, it being possible for the herbicidally active compounds of components A), B) and C) to be applied simultaneously or in succession.

15

30. A method of controlling undesired vegetation as claimed in claim 29, wherein the leaves of the crop plants and of the undesired plants are treated.

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